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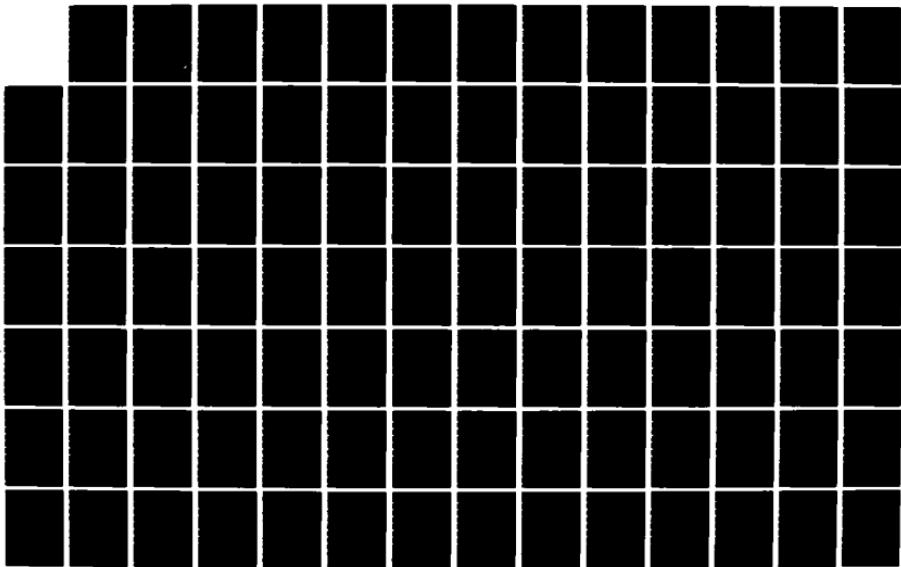
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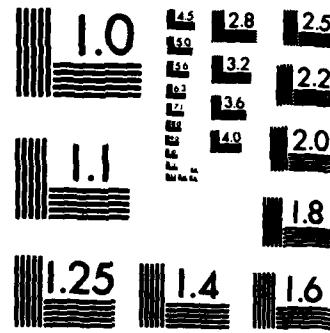
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ABSTRACT

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The purpose of this study was to collect data regarding fathers of cesarean born infants and to study the relationships among presence at delivery, experience of the father, and attachment behaviors. The instrument used was a revision of an observation scale developed to measure maternal attachment behavior and revised to measure paternal attachment behavior. Descriptive data were obtained using a father data questionnaire completed by the father.

The study subjects were the available population of fathers whose infants were delivered by cesarean birth at an armed forces medical center. Thirty fathers participated in the study. The behaviors of all 30 fathers were observed and recorded by the investigator during an early father-infant interaction.

Four hypotheses were tested using the Kruskal-Wallis test, a non-parametric test. The first two hypotheses were

rejected; the last two were accepted. The Mann-Whitney U test, the Kruskal-Wallis test, and the Spearman Rank Correlation test were used to determine the strength of the relationships among infant gender, anticipation of cesarean birth and holding the infant at delivery and attachment score; highest school grade completed and attachment score; and age and child care experience of the father and attachment score, respectively.

Based on the findings of this study, it can be concluded that (a) regardless of presence or absence at the cesarean birth, fathers do not differ significantly in their demonstrations of attachment behaviors toward their infants, (b) regardless of being a first-time or experienced father, fathers do not differ significantly in their demonstrations of attachment behaviors toward their infants, and (c) regardless of the infant's gender and anticipation of cesarean birth, holding the infant at delivery, age, highest school grade completed and child care experience of the father, fathers do not differ significantly in their demonstrations of attachment behaviors toward their infants.

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## ABSTRACT

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The study subjects were the available population of fathers whose infants were delivered by cesarean birth at an armed forces medical center in a metropolitan community. Thirty fathers participated in the study.

The behaviors of all 30 fathers were observed and

recorded by the investigator during an early father-infant interaction. Fathers also completed the Father Data Sheet.

Four hypotheses were tested using the Kruskal-Wallis test, a non-parametric test. The first two hypotheses were rejected; the last two were accepted. The Mann-Whitney U test, the Kruskal-Wallis test, and the Spearman Rank Correlation test were used to determine the strength of the relationships among infant gender, anticipation of cesarean birth and holding the infant at delivery and attachment score; highest school grade completed and attachment score; and age and child care experience of the father and attachment score, respectively.

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CESAREAN BIRTHS AND ATTACHMENT BEHAVIORS OF FATHERS

by  
Margaret Jean Williams

Thesis submitted to the Faculty of the Graduate School  
of the University of Maryland in partial fulfillment  
of the requirements for the degree of  
Master of Science  
1984

Dedicated to . . .

My daughter Christine for her continuing love and  
affection during my educational endeavor.

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## CHAPTER I

Introduction

The birth of a child is regarded as a developmental crisis in the life of a family and is one of the most challenging and significant events a couple can experience. For some parents, the developmental crisis can be particularly difficult when birth is by cesarean delivery. Cesarean deliveries can be justified if they improve perinatal mortality and morbidity, without increasing the maternal risk. In the United States, the average cesarean birth rate increased from 5.5% in 1970 to 9.2% in 1974 and to 15.2% in 1978 (Sehgal, 1981).

Parents whose infants deliver by cesarean birth most likely share the feelings of others who experience a birth. The parents' feelings and perceptions about a cesarean birth are important in that they may be related to their adjustment to parenthood.

The father's perception of the birth experience might be expected to influence the development of the fathering role. Fathers appear to have an increased awareness of their role within the family and in childbirth education classes which are preparing mothers and fathers for active participation in the childbirth process. With the presence of fathers at vaginal deliveries and the increase in the proportion of cesarean births, health care providers can

focus on father-attended cesarean deliveries as support of the fathering role.

#### Statement of Purpose

The purpose of this study is to investigate the attachment behaviors of fathers whose infants are born by cesarean delivery. The study is designed to describe and compare: (a) the attachment behaviors of first-time and experienced fathers, and (b) the attachment behaviors of the fathers who are present at delivery and the fathers who are not present at delivery.

#### Delimitations

1. The institution is a United States armed forces medical center with facilities for high risk maternity care. Medical indications, rather than institutional indications, are the reasons for cesarean delivery. Each woman is looked at individually to determine the best modality of delivery.

2. In the United States armed forces there is one health care system with a wide scope of medical care. Regional medical centers and a sophisticated aeromedical evacuation system give every patient access to necessary health care and the same high standard of medical care.

3. Nurses and board certified physicians possess the training and education which makes them professionally prepared for their practice.

4. All fathers in the study population are associated with the United States armed forces. Members of the armed forces must comply with standards of personal conduct and military conduct.

5. All fathers in the study population must comply with standards of personal conduct while in the institution. The fathers expect from the institution high quality health care for their families.

Definition of Terms

1. Attachment Behavior: A class of diverse behaviors which seek and maintain proximity to another individual and which result in a unique emotional relationship between two people that is specific and endures through time (Bowlby, 1969; Ainsworth, 1973). The behaviors displayed by the father are in direct response to his infant, operationalized by scores on the Father-Infant Attachment Inventory.

2. Father: Hospital registered father of the infant and/or husband of the mother.

a. First-time Father: Has not been a parent to a previous child.

b. Experienced Father: Has parented one or more children.

3. Full-term Infant: Infant weighing not less than 5½ pounds (2500 grams) and between 37 and 42 weeks gestation.

4. Newborn Infant: Infant between 6 and 48 hours old.

5. Healthy Infant: Infant considered well by initial physical examination by physician. Apgar scores are 7 or greater at both 1 and 5 minutes after birth.

6. Early Father-infant Interaction: The observable behavioral experiences, without restrictions, of the father and his infant alone together for the first time after six hours of birth.

#### Basic Assumptions

1. A cesarean birth provides one of the most significant events parents can share.
2. Fathers display attachment behaviors similar to the attachment behaviors of mothers.

#### Hypotheses

This study will address four hypotheses:

1. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present.
2. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean birth of his infant than by the experienced father who is not present.
3. Among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early

father-infant interaction by the first-time father and the experienced father.

4. Among fathers who are not present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

#### Significance of Study

A review of fathering literature prior to 1965 reports the number of studies on the father-child relationship is scant (Nash, 1965). Of those who studied fathers, there are only a few who considered him important in child-rearing. The father had value to his child because of his economic contribution.

Recent studies are examining the role of the father in the family. Most of what we know of the effects on children of the fathers' presence comes from studies of absent fathers (Biller & Meredith, 1975). Paternal absence, physically or psychologically, can have a detrimental effect on the psychosexual development of the child (Mead & Reker, 1979). Studies link delinquency to the emotional or physical absence of the father from the family (Anderson, 1968; Andry, 1960; Bacon, Child, & Barry, 1963; Seigman, 1966). The attitudes of fathers are found to be just as intimately related to the maladjustment among

children as the attitudes of mothers (Petersen et al, 1959). Some children who do not get adequate fathering may experience academic problems (Biller, 1971).

Although there is no direct evidence to suggest that lack of contact between fathers and their newborns is predictive of later child abuse, child abuse statistics reflect the crucial impact of parent-child interactions. Child abuse can be "understood as a particular type of parent-child interaction which can exist in combination with any other psychological state" (Steele, 1970, p. 450). Along with other causes, infants who have been in neonatal intensive care units and were denied immediate postnatal contact with their mothers are more likely to be abused than infants who have had extended immediate postnatal contact with their mothers (Helfer & Kempe, 1968). It is presumed that the restricted infants are more difficult to handle and may be less responsive to parental interaction and stimulation than full-term infants. The result could be an inadequate parent-child attachment.

Positive parent-child interaction may be crucial in the development of the child. One study of high risk infants finds that none of the obstetrical, medical or neurological factors correlate with the child's cognitive development (Gorski, 1983). Only the social interaction between the parent (caregiver) and the infant, such as

holding, touching, talking, and eye contact, appears to make a difference. The earlier one fosters developmentally appropriate interactions between infant and parent, the sooner will come the rewards of parent-child understanding and reciprocity (Gorski). Early and/or extended contact facilitates an initial sensitive period which enhances the synchrony between the newborn's signals and the parent's responsiveness. The synchrony grows as parents and infant experience satisfying interactions (Siegal, 1982).

Due to evidence that the parent-child relationship might be expected to influence child development, it is important to observe and facilitate the development of early father-infant attachment. If the father is present at delivery, he can affirm his paternal role and begin the father-infant relationship. Nurses can then assess the quality of the father-infant interaction by observing the emergence and purposeful display of different father-infant attachment behaviors.

## CHAPTER II

Related Literature

In this chapter, the review of related literature will pertain to three areas: (a) the concept of attachment, (b) paternal attachment, and (c) cesarean birth.

The Concept of Attachment

The study of maternal behavior in animals has stimulated others to investigate the development of the mother-infant relationship in man. Recently, there have been studies on maternal and paternal attachment behaviors toward infants. In order to understand a review of the studies which have described attachment and attachment behaviors, we must know what attachment is and what it means when we use the term attachment.

In the past two decades, developmental and psychological literature used attachment in the context derived from the work of Bowlby (1958). He proposes an ethological approach to the origins of a mother-child relationship which stresses the importance of infant signals in eliciting and maintaining maternal proximity. Ainsworth (1969) refers to attachment as "an affectional tie that one person (animal) forms to another specific individual" (p. 971). She says it is discriminating and specific and it can occur at all ages. Ainsworth (1972) distinguishes attachment from attachment behaviors.

Attachment refers to the propensity "over time to seek proximity and contact with a specific figure", while attachment behaviors refer "to the class of diverse behaviors which promote proximity and contact" (p. 123). Robson and Moss (1970) define maternal attachment as the "extent to which a mother feels that her infant occupies an essential position in her life" (p. 977).

Studying attachment in the direction of mother to infant, Klaus and Kennell (1976) popularize the "bonding" theory. They strongly agree that an essential principle of attachment is bonding. Kennell (1974) views attachment as "a unique emotional relationship between two individuals which is specific and endures through time" (p. 39). Bonding is "a rapid process, occurring immediately after birth, that reflects mother-to-infant attachment" (Campbell & Taylor, 1979, p. 3).

A theoretical perspective to the development of attachment between parent and child suggests the existence of three approaches, the psychoanalytic, the social learning, and the ethological theories.

The psychoanalytic model reconstructs what the experiences of the infant would have been during the successive stages of the first definitive period of development (Ainsworth, 1969). The model refers to "object relations" with the "object" as the agent, often

another person, through which an instinctive desire is achieved. Object relations occur in the first year of life and the infant's first object is usually the mother.

Freud recognized the helplessness of the infancy phase. From a translation by Jones (1957), Freud said that the dangers in the outer world to which the infant is exposed make the infant exceptionally dependent on protectors, particularly the mother, and causes intense emotional bonds between them. This first relationship sets the stage for future close relationships (Freud, 1960).

The relationship to the mother is the baby's first social experience and the whole capacity of the child to relate to human beings through out its life may be determined by this first experience. The mother becomes like a trellis along which a vine grows (Engel, 1951, Lecture IX, p. 1).

The social learning theory is another approach to the development of attachment. Some of the basic work done in this theory is by Bandura (1977). He points out that a large amount of human learning is done through observing, or reading about, another person (model) making a skilled response and then trying to imitate the response.

There are four processes governing observational learning in Bandura's social learning theory. First, attentional processes include the stimulus distinctiveness of the model and model actions and sensory abilities of the observer. Second, the retention processes emphasize

symbolic coding, cognitive organization and memory. In the third process, motor reproduction, attention is given to physical capabilities and accurate feedback. Lastly, motivational processes include the role of reinforcement, external, vicarious and self-reinforcement. It is possible, then, that parenting attachment behaviors are learned through the observation of a model.

The social learning theory also regards dependency as an acquired drive which is first in relation to the mother and then later to another person (Ainsworth, 1969). Sears (1963) remarked that this theory has not had critical evidence to support it, but gives an explanation for why the theory exists.

Presumably, this view has been taken because of the spontaneous character, and persistence, of young children's seeking for attention, affection, and reassurance from their parents, the seeming increase in strength of such supplication when nurturance or affection is withheld, and the reduction of such striving when a substantial amount of nurturance has been given (p. 28).

The ethological approach to attachment was first outlined by Bowlby (1969). His approach is based on the concept that human attachment has a biological base. At the infant's birth, the mother is in a state of biological readiness and is particularly sensitive to the behavior patterns preprogrammed to ensure the survival of the infant. Bowlby, Ainsworth and Klaus and Kennell believe

that events such as separation of the mother and infant can interfere with the biological process of attachment and the effects on the mother can be serious.

Bowlby (1969) identifies four phases of the development of attachment: (a) Phase 1, orientation and signals without discrimination of figure, (b) Phase 2, orientation and signals directed at one (or more) discriminated figure(s), (c) Phase 3, maintenance of proximity to a discriminated figure by means of locomotion as well as signals, and (d) Phase 4, formation of a goal-connected partnership (pp. 266-267). Maternal-infant attachment occurs when there is evidence that the infant recognizes the mother and behaves in a way that maintains the infant's proximity to her. Bowlby identifies sucking, crying, following, clinging, and smiling as stimuli that induces a mother to respond to and interact with her infant. Attachment also exists in adolescence and adulthood. At these times, attachment behaviors are directed to persons outside the family and to groups and is a continuation of attachment behaviors in childhood.

#### Paternal Attachment

In 1974, Bowlby modified his view of mother-child attachment in a letter to The London Times (Green, 1977). In it he said it is the mother figure who is important to the child, not necessarily the biological mother. The

importance of the father as a contributor in the development of his child is recognized by Green (1977). "An allotted span of time for a young father to be around the house and enjoy the first weeks of his son or daughter's life is beginning to be thought of less as an eccentricity, and more as a personal necessity" (p. 216).

One of the early published studies on paternal attachment and the quality of interaction between father and child was Pedersen and Robson (1969). In 45 families, they observed the infant's attachment behavior at eight months and at nine and a half months of age. The infants' mothers reported the fathers' infant caretaking activities when the infants were nine and a half months old. The researchers conclude that the degree of the fathers' caretaking activities, play and emotional involvement with their infant sons are related to the infants' attachment to their fathers.

An important point to remember in interpreting the findings is that the authors defined attachment behaviors based on the greeting responses of the infant rather than on responses caused by separation from a parent. A weakness of the study was that there was no direct assessment of the father's behaviors. Also, there was a scarcity of father-daughter findings. Still, Pedersen and Robson feel that at least early father-son attachment may

be crucial in the sex role development process and interest in the study of fathers and infants should continue.

Examining paternal deprivation and its effects on later academic and social problems, Biller (1974) contends it is never too early for the father to become involved with his child. From the time the mother is pregnant, the father can be involved in visits to the doctor, and, if possible, should be with the mother during labor and in the delivery room.

The new father should be encouraged to spend considerable time with his wife and infant. The earlier the father can feel involved with the infant, the more likely will a strong father-child attachment develop (pp. 162-163).

Earls (1976) is also concerned with the behavior and influence of fathers on their children. His review of fathering literature examined what is known of paternal behavior and its effects upon children. The literature indicates that the quality of the father-child relationship is related to paternal attachment. Inadequate fathering may contribute to delinquency and is related to the maladjustment among children.

Many have investigated the fathers' presence during childbirth and observed the behaviors of fathers with their newborns. In an attempt to arouse interest on father-newborn interaction, Parke and O'Leary (1976) studied the extent fathers interact with their two to

four day old infants. The occurrence or non-occurrence of infant and parent behaviors were observed and recorded. The infant behaviors selected were crying, vocalizing, moving, looking at father, looking at mother, and looking around. The parent behaviors selected were looking at infant, exploring infant, touching infant, and handing infant to other parent. The observations were for forty 15-second intervals for ten consecutive minutes.

Parke and O'Leary did the study initially with 9 male and 10 female infants. They repeated the study using the same study design and techniques, but with a larger sample and including lower income families and high risk infants. The two studies yielded the same results and the conclusions provide some evidence that fathers are involved with their newborn infants. When the father, mother and infant were together, the triadic interaction, the father played the more active and dominant role. However, the mothers smiled at the baby and explored more than the fathers. Parke and O'Leary do not conclude any significant behavioral differences between fathers alone and mothers alone with their infants. Sex and birth order of the infant, medication of the mother, anesthetics, analgesics, and the infant's responsivity are some variables which may have effected the results. Nonetheless, the findings show that fathers are responsive to their infants and are just as nurturant and

stimulating as the mothers.

Cronenwett and Newmark (1974) examined the fathers' responses to childbirth. The purpose of their study was to determine if variations in a father's preparation and attendance at childbirth influence the development of the father-child relationship, the development of the husband-wife relationship, and the effect on the father's overall perception of the childbirth experience.

The sample had a total of 152 fathers, divided into three groups. There were prepared attenders, 64 fathers; unprepared attenders, 58 fathers; and nonattenders, 30 fathers with 4 prepared and 26 unprepared. Each father received a questionnaire which indicated the strength of their agreement with statements expressing feelings toward their infants or their wives during labor and delivery.

An analysis of variances on the data shows that the significant differences among the three groups resulted from the variables of preparation for childbirth classes and attendance at delivery and not the population variables of age, race, marital status, source of medical care, parity of the mother, education, type of delivery, anesthesia, or length of labor. The results indicate that there is no measurable differences in the father-child relationship among the groups of fathers. Both formal childbirth education and attendance at delivery positively

influence the fathers' perception of themselves and the relationship with their wives. Also, fathers who attended delivery perceived childbirth as a more positive experience than nonattenders.

The study has strength based on the sample size, although the groups are disproportionate. The tool used in the survey was a questionnaire developed by the authors and they give some detail of its construction and pilot. The researchers assume that the fathers gave honest responses to the questionnaire. It is possible the fathers answered so as to impress the researchers or present themselves in a more socially desirable way. Still, the conclusions should give thought to those whose hospitals do not allow a father to attend the birth of his child.

Greenberg and Morris (1974) describe the impact of the first newborn on the father and the involvement of the father with his newborn. They use the term "engrossment" when describing the bonding characteristics. Engrossment is "a sense of absorption, pre-occupation, and interest in the infant" (p. 521). The infant assumes "larger proportions" for the father and the father feels bigger with an increased sense of self-esteem and worth.

The study by Greenberg and Morris consists of two groups of first-time fathers, 15 fathers in each group. One group had contact with their newborns at birth and the

second group had contact when shown their infants by nursing personnel. Each father was given a questionnaire about his feelings toward his infant 48 to 72 hours after birth. Clinical interviews were also done with 15 fathers and the content reflected visual awareness of the infant, awareness of distinct features of the infant, perception of the infant as "perfect," a strong attraction to the infant, extreme elation following the birth, and an increased sense of self-esteem.

These researchers conclude that engrossment is more likely to occur with early contact with the infant. Although there was no highly significant difference in observations of engrossment among first-time fathers who were present at delivery and first-time fathers who were not present, fathers who saw the birth of their infants were more comfortable in holding their infants, and they thought they could identify their infants from other infants better than fathers who were not present at delivery.

The primary concerns to consider before applying the findings of this study to the father-infant relationship are the sample size, sample selection and the data gathering tool. A study in England with only 15 fathers per group limits the generalizability of the study. The authors do not describe the procedure for sample selection

and little information on the questionnaire development and no reliability and validity data are given. The findings are of interest even though data were obtained only by questionnaire and interview without observing behavior. Even though the use of a control group lends support for the concept of engrossment, the strength of the findings are limited.

Paternal-newborn behavior studies that utilized observational tools for data collection were done by Edwards (1976), McDonald (1978) and Bowen and Miller (1980).

Edwards observed 15 fathers who had never had a child and 15 experienced fathers who had a least one child and their infants. The infant and father were in an observation room and a five minute video-tape was made of the father-infant interaction. The mother was not present. A descriptive list of ten attachment behaviors was used to measure the behaviors of the father toward his infant.

Edwards concludes that the father's age, education and experience or inexperience does not interfere with the demonstration of attachment behaviors toward his infant. Eye-to-eye contact is a significant component of father-infant interaction. Also, smiling is found to play a significant role in the demonstration of attachment behaviors.

The reader must consider the small sample size in

the Edwards' study. Also, the tool used was a minor adaptation of an inventory on maternal attachment behavior and further testing with fathers would enhance its validity.

In a unique study of paternal behaviors, McDonald (1978) observed behaviors similar to those of mother-infant attachment. Seven infants were born in a homelike environment without direct intervention of the midwife or physician. The behavior of the seven fathers immediately after birth was video-taped for a total of a nine minute sampling period.

Seven predictably stable and uniform paternal behaviors were observed which consisted of contact behaviors. They were hovering, prolonged gazing, visual contact, pointing, face-to-face, fingertip contact, and palming contact. These are similar to behaviors considered by Klaus and Kennell (1976) to be indicators of maternal attachment. McDonald's conclusions suggest that "the repertoire of paternal behaviors at initial encounters with their newborn may be species-characteristic of the human father, and may function to establish the father-to-newborn affectual bond" (p. 123).

The investigator was not thorough in pointing out the study's limitations and the reader should consider the small sample size. The size makes the findings tentative and further study is needed to support and clarify whether these behaviors are characteristic of fathers. The fathers

were purposefully selected and different from the population who did not elect to deliver in a nonintervention birth environment or did not have a choice. The findings are specific for a particular time and place and one cannot generalize to situations different from the one in which the study was done. Considering these cautions, the results do contribute information relevant to anyone who is interested in the birthing room philosophy and family centered maternity care.

Bowen and Miller (1980) studied father-infant attachment and its relationship to three variables, parenthood classes, presence at delivery, and the state of the infant. The study included 48 fathers and their infants observed between 12 and 72 hours after delivery. There were three groups of fathers observed: 21 fathers who participated in parenthood classes and were present at delivery, 8 fathers who did not participate in classes but were present at delivery, and 17 fathers who neither attended classes nor were present at delivery. A check mark on an observation sheet was given when a father and infant behavior occurred. The paternal behaviors were inspection, verbalization, smiling, touching, en face position, and holding. The infant states and behaviors observed were sleep, drowsy, quiet alert, active alert, and crying.

A stepwise regression analysis was done and the researchers conclude that participation in parenthood classes is not significantly related to paternal attachment behaviors. Presence at delivery is significant in regard to the total attachment score. The state of the infant affected the paternal attachment behavior. There was a significant inverse relationship between the sleep state in infants and the total attachment behavior score of the father.

With three variables and five infant states, a larger and even sample would add strength to the conclusions. The reader should be aware that demographic data for the three groups are different and there were no controls for the maternal variables of parity, type of delivery or anesthesia.

The inverse relationship between sleep state in infants and attachment behavior is a similar result found by Brazelton (1979). He studied infant interaction with mother and father and related behaviors of an infant with maternal expectation. Brazelton systematically collected data on newborns and developed the Neonatal Behavioral Assessment Scale which looks at the influence of infant and mother in their interaction and documents relative differences in neonatal behavior (Brazelton, 1973). The scale contains 20 neurological reflex items and

27 behavioral items which elicit a sensitivity to a specified environment.

Brazelton contends that eye-to-eye contact gives identity to the baby and feedback to the mother. The parents become more quickly attuned to the individuality of their infants and the attachment process can be promoted. Brazelton believes the opposite occurs with a depressed infant. Commenting in Maternal-Infant Bonding by Klaus and Kennell, Brazelton says,

Certainly a depressed infant is less likely to be responsive either on initial contact or during feeding situations, and he becomes less stimulating and responsive to a mother who is trying hard to mobilize herself to attach to her new infant (p. 48).

Two studies that use observational tools and written questionnaires to gather data on fathers and their infants are Jones (1981) and Taubenheim (1981). Jones looks at 51 fathers and their infants at 24 and 72 hours of age and again at one month of age. She explores the effects of early contact, the sex of the infant, and irritability of the infant to the father's perception, caretaking, interactions, and play.

The Broussard Neonatal Perception Inventory is used with the fathers. The Broussard Inventories measure how much difficulty the father thinks his infant will have in the areas of eating, sleeping, spitting up, crying, eliminating, and getting on a schedule, when compared with

his perception of the average baby. Data were also obtained with the Brazelton Neonatal Behavioral Scale.

When the infants in the study were a month old, each father completed a care-taking and play checklist and the Broussard Inventories were administered again. There was also a ten minute observation of father-infant interaction.

From the study it appears that early contact enhances nonverbal communication between fathers and infants.

Fathers verbalize more to girls than to boys. Fathers do more care-taking activities with one month old infants seen as highly irritable at 24 to 72 hours of age than those infants who were identified as being less irritable. Since Jones is the first reported researcher to use the Broussard Inventories with fathers, more study using the Broussard Inventories with fathers would support her results.

In a pilot study, Taubenheim (1981) uses ten first-time fathers to determine the behaviors and attitudes of fathers during the first three days after birth. Two written questionnaires and an observational tool are used. One questionnaire is designed to collect demographic data and psychological factors which can influence the father's attitude toward his newborn. The other questionnaire contains statements which reflect the father's feelings toward young children, his newborn, the fathering role,

and the relationship with his wife and newborn. The observational tool contains 22 behaviors and is used during three observations of each father and his newborn.

The reader should consider the value of the tools used in the study. Taubenheim gives an adequate description of the two questionnaires, but she does not include reliability and validity data. The observational tool also lacks reliability and validity data.

One of the findings of Taubenheim's study indicates that fathers with the highest number of bonding behaviors feed their infants and assume the en face position more frequently than fathers with the lowest number of bonding behaviors. An interesting result is that "the behavior which occurred with the greatest frequency was the subjects' talking about their newborns with another person, which may be a characteristic of paternal-infant bonding" (p. 263).

Toney (1983) studied the effects of holding the newborn on paternal bonding behaviors. The study sample consisted of 37 married, first-time fathers of uncomplicated single vaginal deliveries or cesarean births using spinal anesthesia for failure of labor to progress. The fathers were randomly assigned to two groups, holding or not holding their infants at delivery. The experimental group held their infants for ten minutes during the first hour

after delivery. The fathers in the control group first held their infants 8 to 12 hours after delivery. The investigator and an observer met with the parents between 12 to 36 hours after delivery for approximately 20 minutes. The investigator was present to answer questions and assist the father with infant care. The observer recorded the frequency of bonding behaviors observed during a ten minute timed period. Behaviors observed included verbal interaction, smiling, eye contact, fingertip touching and whole-hand touching.

A multivariate analysis of variance on the data revealed that there was no significant difference in bonding behaviors between fathers who had contact with their infants during the first hour following delivery and those who did not. Analysis on the data did show that the fathers in the control group displayed more bonding behaviors with male infants. There was also a tendency for higher levels of parental education to be associated with more bonding behaviors.

The technique for sample selection of fathers was not clear. The investigator did not indicate the amount of contact opportunity available to fathers and their infants prior to the observation period. With the observation period between 12 to 36 hours after delivery, the study seems to suggest that the timing for assessing

father-infant interaction was unimportant. Nonetheless, this study lends support for further investigations concerning holding the infant at delivery as a factor which encourages father-infant attachment.

Some researchers who study the parent-child relationship consider bonding and/or extended contact to be critical aspects of the ongoing attachment process. Others doubt the direct cause-and-effect relationship of bonding and the quality of parent-infant attachment. Research data have not definitely established how long the effects of early contact will last or how the single factor of early contact, or lack of it, will influence later attachment behavior.

Chess and Thomas (1982), Lamb (1982) and Mitchell and Miller (1983) doubt the maternal bonding theory. They believe that studies supporting the bonding concept have been weak. These studies varied in the duration and timing of parent-infant contact. The sample sizes used were small and there was a variety of outcome measures. Research on the long-term effects of early contact also had methodological flaws or concluded that there were few behavioral differences between mothers or the children who had early contact and those who did not.

In an indepth study and critique of bonding and attachment behavior studies, Goldberg (1983) asserts that

the sensitive period hypothesis has not been tested. She summarizes her literature review into several points:

1. There is no systematic study of a possible sensitive period for the initiation of maternal behavior.

2. The possibility of the effects of early contact persisting beyond the first three days has not been adequately studied.

3. Studies have not convincingly demonstrated consistent effects of extra contact opportunity in the delivery or recovery room.

4. Studies in which mothers in the experimental group received both early and extended contact are most likely to provide evidence on the subsequent effects of the amount of in-hospital contact opportunity. However, there is no consensus of findings within these studies.

5. Finally, there is no evidence to determine whether social class mediates the effects of in-hospital contact opportunity.

Those persons who doubt whether there is a particularly influential sensitive period for parent-infant bonding do not deny that early contact is emotionally satisfying for parent and child. They contend, however, that attachment and child development is a complex process with many factors inter-relating and parents and infants who are denied early contact are not permanently damaged or doomed

to a poor parent-child relationship. Nonetheless, it is interesting to expand the understanding of the role that early contact plays in the parent-child relationship.

From a cognitive point of view, attachment is a process of interaction and interchange of information through behaviors and verbal communication. Both the parent and child have a sensory reception and a sensori-motor adaptation to each other. Most important, attachment is affiliative in nature. It is one of the many concepts which expresses "effective relationships within an individual and between an individual and significant others" (Peterson, 1976, p. 44). Its study should be given high priority because it is believed that it "lays the foundation in the mother-infant dyad for all other affiliative concepts throughout the life cycle" (Peterson, 1976, p. 45).

#### The Cesarean Birth

With the increase in cesarean births, there has been an increase in the concern over maternal attitudes and the effects of a surgical delivery experience (Bampton & Mancini, 1973; Marut, 1978; Marut & Mercer, 1979; Hart, 1980; Lipson & Tilden, 1980; Fawcett, 1981; Blodgett, 1981).

In a study of women's reactions to having a cesarean birth, Affonso and Stichler (1978) interviewed 105 women. They used a questionnaire to assess their feelings about

their birth experiences. Data were analyzed by the researchers identifying common themes in the responses and tabulating their frequency.

Among the many findings, 11% stated that they felt a loss at the absence of their husbands while in the operating room, and all respondents wanted to see their husbands or another person while in the recovery room. Regarding the perception of the husband's feelings, 14% responded that having their husbands with them during the surgery or near enough to hear the baby's first cry would have made the husband feel a part of the childbirth experience.

The impact of a cesarean birth upon the father was obtained through the mother's perceptions. Still, Affonso and Stichler conclude that the fathers experience many of the same feelings as the mother - anger, disappointment, grief, and relief. In addition, a major source of the father's emotional responses to cesarean birth "centers on his not being allowed to witness or participate" (p. 93). More investigation with the fathers directly is needed to support these assertions.

Banks (1978) did an exploratory case study into the psychological implications of a cesarean birth. She selected six primiparous married women. Thus, her findings are only suggestive of her hypothesis.

Banks asserts that the nature of the father's participation

would effect the mother's confidence and maternal attitude. She hypothesizes that the trend toward inclusion of fathers at cesarean births results in a higher incidence of paternal engrossment, when coupled with the routine of early separation of mother and infant. In some cases, Banks feels this opportunity for paternal engrossment, prior to the opportunity for maternal-infant bonding, may have an adverse effect on the mother's self-confidence in caring for her newborn. Father-attended cesarean births may be affecting a role reversal. The father, rather than the mother, is with the infant during a major critical period for parental-infant attachment. Present published research data do not test this hypothesis.

While there is awareness of the psychological impact of cesarean births on mothers, there is little consideration and information of the effects of this birth experience on fathers. Pedersen, Zaslow, Cain, and Anderson (1981) did an exploratory study that dealt with the psychological implications of cesarean births for fathers as well as for mothers. Data were collected from a total of 41 families using home observations, ratings of interaction, and interviews. There were six cesarean births and the rest were normal vaginal deliveries. Comparisons were made between the two groups. None of the fathers were present for the cesarean births whereas 80% of the fathers were

present for the vaginal births.

Data suggest a pattern of differences in father-infant interaction related to birth experience. The fathers of cesarean born infants showed greater concern for the infant's care and well-being, reported engaging in significantly more caregiving, and were more likely to share in caregiving responsibilities in several different areas on an equal basis with the mother than fathers of vaginally delivered infants. Also, fathers of cesarean born infants were rated as significantly more responsive to the infants' crying and fussing than were fathers in the comparison group. These findings allude to the role reversal situation described by Banks (1978). However, Pedersen et al find no indication that fathers of cesarean born infants engage in higher rates of purely social interaction.

Rodholm (1981) studied cesarean births and the effects of father-infant postpartum contact on their interaction three months after birth. The study was conducted in Sweden at two neonatal units at the same university hospital. In one neonatal unit, infants born by cesarean delivery were routinely placed in an incubator for one day postpartum. In the study, these infants became the experimental group, called the non-contact group, and included 16 infants. At the other neonatal unit, within 15 minutes of delivery, the fathers were allowed 10 minutes to "acquaint" themselves

with their cesarean born infants in any way they liked. These infants became the control group and included 29 infants.

When the infants were three months old, father-infant interaction was observed at home during a play situation. From the observations it was concluded that the non-contact fathers held their infants with the infants' faces directed away for a significantly longer period of time than did the contact fathers. The contact fathers caressed their infants more than the non-contact fathers. There were no significant differences observed in the father-infant interaction in relation to time devoted to vocal communication, involvement in a dialogue with the infant, the way the father looked at his infant, trying to get eye contact, or keeping eye contact.

Rodholm attempts to trace the effects of early father-infant contact beyond the few days after delivery. Though the small and disproportionate sample size limits the findings, the author does promote interest in the father-infant relationship, especially when the modality of birth is by cesarean delivery.

Recent literature supports the father's presence in the operating room at the cesarean birth of his child (Hallmark & Findlay, 1982; Jackson, Schlichting, & Hulme, 1982). Enkin (1977) believes that "having a section is having a baby" and that fathers can be allowed in the

operating room "with relative ease and to the increased satisfaction of parents and doctors" (p. 102).

### Summary

The psychoanalytic, social learning and ethological theories provide a theoretical perspective to the development of attachment between parent and child. Recent developmental and psychological literature on attachment refer to the ethological approach described by Bowlby. He views infant behaviors as stimuli that cause the mother to respond and eventually results in a reciprocal mother-infant relationship. In her study of attachment, Ainsworth refers to attachment behaviors as behaviors which promote proximity and contact. Klaus and Kennell's explanation of maternal attachment popularizes the concept of bonding, that there is a "critical period" at childbirth necessary for maternal attachment.

Studies are also investigating the development of paternal attachment. Literature on the father-child relationship acknowledges that the father has a rightful place alongside the mother in the development of the child (Biller, 1974; Earls, 1976; Green, 1977). Health care providers now recognize that paternal-infant attachment is necessary for the father in his role and for the healthy nurturance of his infant. Fathers and their newborns are getting together at birth rather than waiting until their infants are discharged home.

While there is awareness of the psychological implications of cesarean births for mothers, there are little data on the effects of this birth experience on the psycho-social relationship of fathers and infants. The childbirth experience is a critical period in the father-infant relationship and the inclusion of the father at delivery should be addressed by health care providers. Therefore, a study which focuses on the father-child relationship and cesarean birth is both timely and important.

## CHAPTER III

Method of StudyThe Setting

The study was conducted during a four month period in a large United States armed forces medical center located in a metropolitan community on the east coast. The obstetrical area of the medical center contains 24 antepartum/postpartum beds, 4 labor beds and 3 delivery rooms. The nursery has facilities for both well newborns and sick and premature infants. An average of approximately 118 deliveries occur at the medical center each month. Of these, there are an average of approximately 20 cesarean births. For the most part, the patients are from the surrounding geographic areas. Some patients are referred to the medical center because of complications during pregnancy. All the study subjects were eligible for obstetrical care through Department of Defense regulations. Patients are cared for by house staff assigned to the medical center at that time and all physicians must adhere to institutional policies. Fathers are encouraged to participate in labor and delivery and are permitted in the operating room during cesarean births with physician approval. Visiting with the well infant is unlimited and without restriction after the first six hours of birth.

Approval for the study was given by the Chief of the

Department of Obstetrics and Gynecology, the Chief of Obstetrical Service, the Chief of Newborn Medicine Service, the Chief of the Department of Nursing, and the Area Coordinator, Nursing Service, in charge of maternal and infant care. Approval also came from the Human Volunteers Research Committee at the University of Maryland at Baltimore. Final approval for the study came from the Clinical Investigation and Human Use Committee at the armed forces medical center.

#### The Design

The study is comparative descriptive research. The purpose was to collect data regarding fathers of cesarean born infants. It was a study of the relationships among presence at delivery, experience of the father (first-time or not first-time), and attachment behaviors. There was no manipulation of these variables.

The study addressed four hypotheses:

1. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present.
2. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean

birth of his child than by the experienced father who is not present.

3. Among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

4. Among fathers who are not present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

#### Population and Sample Selection

The postpartum unit at the medical center was contacted regularly by the investigator from September 27, 1983 to January 31, 1984 in order to learn of cesarean births. The investigator also referred to the scheduled cesarean delivery log book to anticipate the availability of possible subjects. Regardless of the reason for the cesarean birth, every cesarean birth during the time period was reviewed according to study criteria. A total of 86 cesarean births occurred at the medical center during the time the study was being conducted.

Fathers were disqualified from the study if one or more of the following occurred: (a) medical problems with

the infant (fetal distress, respiratory distress, meconium staining, congenital anomaly, and other conditions requiring more than routine newborn care), (b) prematurity, (c) multiple birth, (d) maternal distress (abruptio placenta), and (e) general anesthesia for delivery.

Fathers were not selected with regard to race, highest grade completed, occupation, child care experience, or having formal preparation for childbirth.

All cesarean births in the study were performed for one or more of the following indications: (a) previous cesarean birth, (b) fetal malposition, (c) herpes genitalis, (d) cephalopelvic disproportion, (e) failure to progress, (f) failure of descent and dilatation, and (g) failed induction. Of the births in the study, 11 cesarean deliveries (36%) were performed solely for the indication of previous cesarean birth.

Forty fathers were disqualified from participating in the study for one or more of the reasons listed above. A nonrandom sample of 46 subjects were identified as meeting the criteria for admission to the study. Two fathers refused to participate. One family wanted the birth to be "special" and the other family stated they did not have time for the study. The military assignments of three fathers prevented their presence at delivery and they were unavailable for the study. Two fathers, physicians, had

unrestricted interaction with their infants during the first six hours after birth and were not contacted by the investigator. One father did not participate in the study because he was a foreign diplomat and could not speak or read English. Of the remaining 38, 8 fathers were not contacted due to the schedule of the investigator. The investigator was available for 30 subjects who met the study criteria.

The fathers in the study were between the ages of 20 and 39 (Table 1). The mean age of the fathers was 27.46; 73.3% of the fathers were between 20 and 30 years of age. Fifty three percent of the fathers were 26 years of age or younger. Twenty four fathers identified their race as caucasian, five as black, and one as hispanic. Seven fathers had postgraduate level as their highest grade completed. The mean educational level for 23 fathers who did not attend postgraduate course work was 13.17 years. Fourteen fathers, representing 46.7% of the total study subjects, had not progressed educationally beyond the 12 grade level. All fathers, except one, were married and were the hospital registered father of the infant. For further detailed information on each father in the study, refer to Appendices A and B.

All infants in the study were full-term, healthy newborn infants. Infants were between  $6\frac{1}{2}$  and  $34\frac{1}{2}$  hours of

age. Fifty seven percent of the infants were male. The infant's gender was not a criterion for eligibility for the study.

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Table 1

Means, Modes, Medians, Ranges, and Standard Deviations  
of Fathers' Quantitative Variables

Variable	N	Mean	Mode	Median	Range	Standard Deviation
Age of Father	30	27.5	22	26.25	19	5.45
Age of Mother	30	26.7	23	25.50	20	5.10
Years Married	29	4.1	1,3*	3.00	13	3.23
Highest School Grade Completed	23	13.17	12	12.00	4	1.74
(Without Postgraduate Level)						

\* Bimodal

### Instruments

The Father-Infant Attachment Inventory (Appendix C), designed by Newton (1975) and revised by Edwards (1976), and further revised by the investigator, was selected as a tool to describe attachment behaviors of an individual at a specific point in time. The tool includes behaviors that were used in previous bonding studies- touching, verbal interaction, smiling, eye contact, and face-to-face contact (Bowen & Miller, 1980; Jones, 1981; Parke & O'Leary, 1976; Toney, 1983). It is a descriptive list of attachment behaviors used to measure positive and negative attachment behaviors of a father toward his infant during the first 6 to 48 hours of the infant's life.

Newton developed the Maternal Attachment Behaviors Scale, a list of 12 attachment behaviors which assesses a mother's behaviors toward her infant. Newton submitted the tool to a group of graduate students and faculty of the Maternal-Child Department of the University of Maryland School of Nursing for the evaluation of content validity. She used the scale in a Master's thesis at the University of Maryland School of Nursing in which she observed mothers feeding their infants during the immediate postpartum period. Notes of the mothers' behaviors were recorded during the observations and later discussed with graduate faculty members in order to improve reliability. The

mean interrater reliability was .82.

Edwards (1976) revised the tool to include ten attachment behaviors which seemed pertinent to fathers; she eliminated behaviors associated with mothers and breastfeeding. Validity was based on the assumption that fathers as well as mothers display attachment behaviors toward their infants. The tool, Father-Infant Attachment Inventory, was used in a Master's thesis at the University of Maryland School of Nursing involving a study of father-infant interaction during a five minute video-taped observation period. One tape containing five observations was randomly chosen to determine interrater reliability. The percentage of interrater agreement was between 88% and 98%.

The investigator edited and renumbered the items on the Father-Infant Attachment Inventory. The words "occasionally" and "frequently" in items 2 and 6 were operationalized. The words "entire observation period" in item 4 were changed to "more than 2½ minutes".

For each 11 items on the Father-Infant Attachment Inventory, a score of 1, 2 or 3 is given. A score of 1 is given for the behavior that expresses the least display of that behavior and a score of 3 is given for the behavior that expresses the greatest display of that behavior. If the father removes the infant from the bassinet immediately

and does not stroke or pat the infant while the infant is in the bassinet, he does not receive points on item 2. If the father does not remove the infant from the bassinet, he does not receive points on items 3, 4 or 5. If the infant's eyes remain closed for the entire observation period making it impossible for the father to have eye-to-eye contact, the father does not receive points on item 8. The possible range of scores is 6 to 33.

A pilot training session for the investigator and an additional observer was held in order to insure a high level of reliability for the scoring of the instrument. Observations of several father-infant interactions during the immediate postpartum period were reviewed prior to the actual data collection.

In this study, observations number 4, 10, 28 and 30 were scored by the investigator and an observer and scores were compared item by item from the instrument. An index of interrater agreement was determined by dividing the number of items in which the observers agreed by the total number of items scored. Agreement ranged from .81 to .90 with a mean of .855.

A Father Data Sheet (Appendix D) was designed to gather data so that differences and/or similarities could be assessed among the groups of fathers. It included factors that may have a direct influence on the display of

attachment behaviors. These factors include age, race, highest school grade completed, length of marriage, wife's age, infant's gender, father's child care experience, father's presence at the birth of previous children, father's presence at newborn's birth, holding the infant at delivery, and anticipation of cesarean birth (planned or unplanned). The final item on the Father Data Sheet deals with information as to why the father attended or did not attend the cesarean birth. The Father Data Sheet is easily read and can be completed in about five minutes.

#### Collection of Data

The mothers' and infants' charts were screened by the investigator in order to identify eligible subjects. The charts were reviewed for marital status, indications for cesarean delivery, anesthesia, and infant's gestational age, birth weight, and apgar scores. Prior to meeting the father, the investigator did a final review of the mother's chart and confirmed the wellness of the infant with nursery personnel.

The investigator approached each father individually and explained the purpose and procedure of the study (Appendix E). Whenever possible, the purpose and procedure was explained to the mother. When feasible, such as with scheduled cesarean births, the father was approached prior to the birth of his infant. The volunteer agreement

(Appendix F) and explanation consent sheet (Appendix G) were read with each prospective father and he was given an opportunity to ask questions. If he agreed to visit with his infant and complete a data sheet, the volunteer agreement and explanation consent sheet were then signed and dated by the father and investigator. The father was given the Father Data Sheet and he was asked not to put his name on the data sheet. The data sheet was not returned to the investigator until after the observation in order to reduce investigator bias. Anonymity on the data sheet and Father-Infant Attachment Inventory was maintained through a permanent subject identification number.

The observation room was located in the nursery unit. It contained a straight backed chair and a rocking chair for the father to use if he desired. The investigator and the father wore a cover gown and washed their hands before entering the nursery to comply with nursery procedure and minimize the possibility of neonatal infection. The investigator brought the infant in a bassinet to the observation room. The father was told he could visit with his infant without restrictions and in any way he chose (Appendix H). The investigator observed the father-infant interaction for a ten minute timed period.

## CHAPTER IV

Analysis of Data

There were four hypotheses tested in the study:

1. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present.
2. There will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean birth of his infant than by the experienced father who is not present.
3. Among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.
4. Among fathers who are not present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

Through the method of direct observation, the fathers were scored on the Father-Infant Attachment Inventory.

The mean score for the fathers on the attachment inventory was 26.2 with a standard deviation of 2.70. The median was 26.5, where a score of 33 is the maximum possible score and 6 is the minimum possible score. Total scores for all the fathers ranged from 17 to 30. The distribution of the fathers' raw scores on each of the items is presented in Table 2. In addition, the mean and standard deviation for each item are presented. A more thorough discussion of Table 2 will be presented in Chapter V.

Data were analyzed utilizing the Kruskal-Wallis analysis of variance on ranks, a non-parametric test. This test was used because the Father-Infant Attachment Inventory is considered an ordinal measurement scale.

Demographic data concerning some characteristics of the fathers were investigated as variables in relation to the total attachment score and were used to form subgroups. Group differences were statistically tested between the total attachment scores for the variables of infant gender, anticipation of cesarean birth and holding the infant at delivery using the Mann-Whitney U test. Group differences were statistically tested between the total attachment score and highest school grade completed by the Kruskal-Wallis test. Relationships between the total attachment scores for the variables of age and child care experience of the father were statistically tested by the Spearman Rank Correlation test.

Table 2

Distribution of Fathers' Scores on Items of the  
Father-Infant Attachment Inventory (n=30)

Item	Could Not Score Item	Score			Mean and Standard Deviation
		1	2	3	
1. Receiving Infant	0	1	7	22*	$\bar{x}=2.70$ s.d.=0.53
2. Stroking Infant In Bassinet	20*	3	5	2	$\bar{x}=0.66$ s.d.=1.06
3. Handling of Infant	1	1	3	25*	$\bar{x}=2.73$ s.d.=0.69
4. Duration of Holding Infant	1	0	0	29*	$\bar{x}=2.90$ s.d.=0.54
5. Movement While Holding Infant	1	8	6	15*	$\bar{x}=2.13$ s.d.=0.93
6. Vocalizations	0	0	1	29*	$\bar{x}=3.00$ s.d.=0.00
7. Smiling	0	0	2	28*	$\bar{x}=2.93$ s.d.=0.25
8. Eye Contact	17*	0	5	8	$\bar{x}=1.13$ s.d.=1.35
9. Face-To-Face	0	0	0	30*	$\bar{x}=3.00$ s.d.=0.00
10. Examining Body Parts	0	0	8	22*	$\bar{x}=2.73$ s.d.=0.45
11. Identification	0	8	0	22*	$\bar{x}=2.46$ s.d.=0.90

\* Mode

The analysis of data is presented according to findings relevant to the hypotheses and findings unrelated to the hypotheses.

Hypothesis 1

There will be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present.

Table 3 contains the individual scores of first-time fathers who were present at the cesarean birth of their infants and the individual scores of first-time fathers who were not present at the cesarean birth of their infants.

The Kruskal-Wallis test was used to determine whether there was a significant difference at the .05 level between the scores of the first-time fathers who were present at delivery and the scores of the first-time fathers who were not present at delivery. Results showed there was no significant difference ( $\chi^2=4.163$ ,  $p=.24$ ) at the .05 level. Therefore, the hypothesis was rejected. The results of this test are shown in Table 4.

Table 3

Individual Scores of First-time Fathers on Items of the  
Father-Infant Attachment Inventory

Father	Present at Delivery											Total Score
	1	2	3	4	5	6	7	8	9	10	11	
6	3	0	3	3	3	3	3	3	3	2	3	29
7	1	3	0	0	0	3	2	0	3	2	3	17
10	2	2	3	3	2	3	3	0	3	3	3	27
13	3	0	3	3	3	2	3	0	3	2	3	25
14	2	2	3	3	3	3	3	3	3	2	3	30
15	3	0	3	3	2	3	3	3	3	3	3	29
17	2	2	3	3	1	3	3	3	3	3	3	29
20	3	0	3	3	2	3	3	3	3	3	3	29
22	3	0	3	3	1	3	3	3	3	3	1	26
23	3	0	3	3	2	3	3	3	3	3	3	29
25	3	0	3	3	3	3	3	3	3	3	3	30
27	2	1	2	3	3	3	3	2	3	2	1	25
29	3	0	3	3	1	3	3	0	3	3	3	25
Not Present at Delivery												
Father	1	2	3	4	5	6	7	8	9	10	11	Total Score
2	2	1	1	3	3	3	3	2	3	2	1	21
21	2	1	2	3	3	3	3	2	3	3	3	28
30	3	0	3	3	3	3	3	2	3	3	1	27

Table 4

Relationships among First-time Fathers and Experienced  
Fathers, Present and Not Present at Delivery

Subjects	N	Mean Ranks*
First-time, Present	13	18.77
First-time, Not Present	3	14.67
Experienced, Present	9	14.28
Experienced, Not Present	5	9.70

\*Kruskal-Wallis,  $\chi^2=4.163$ ,  $p=0.244$

Hypothesis 2

There will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean birth of his infant than by the experienced father who is not present.

Table 5 contains the individual scores of experienced fathers who were present at the cesarean birth of their infants and the individual scores of experienced fathers who were not present at the cesarean birth of their infants.

The Kruskal-Wallis test was used to determine whether there was a significant difference at the .05 level between the scores of the experienced fathers who were present at delivery and the scores of the experienced fathers who were not present at delivery. Results showed there was no

Table 5

Individual Scores of Experienced Fathers on Items of the  
Father-Infant Attachment Inventory

Father	Present at Delivery											Total Score
	1	2	3	4	5	6	7	8	9	10	11	
4	3	0	3	3	1	3	3	0	3	2	3	24
5	3	0	3	3	2	3	3	0	3	3	3	26
12	3	0	3	3	3	3	3	0	3	3	3	27
16	3	0	3	3	3	3	3	0	3	3	3	27
18	3	0	3	3	3	3	3	0	3	3	3	27
19	3	0	3	3	3	3	3	0	3	3	3	27
24	3	0	3	3	1	3	3	2	3	3	3	27
26	2	2	3	3	3	3	3	0	3	3	1	26
28	3	0	3	3	1	3	3	0	3	3	1	23

Father	Not Present at Delivery											Total Score
	1	2	3	4	5	6	7	8	9	10	11	
1	3	0	3	3	1	3	3	0	3	3	3	25
3	3	3	3	3	3	3	2	0	3	2	1	26
8	3	0	3	3	2	3	3	0	3	3	3	26
9	3	0	3	3	1	3	3	0	3	3	1	23
11	3	0	2	3	3	3	3	0	3	3	3	26

significant difference ( $\chi^2=4.163$ ,  $p=.24$ ) at the .05 level. Therefore, the hypothesis was rejected. The results of this test are shown in Table 4.

#### Hypothesis 3

Among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

The Kruskal-Wallis test was used to determine whether there was a significant difference at the .20 level between the scores of the first-time fathers who were present at delivery and the experienced fathers who were present at delivery. A .20 level was used to reduce the Type 2 error.

When carrying out a preliminary test, it is quite important to avoid Type 2 error, that is, accepting the null hypothesis . . . when it should be rejected. The Type 2 error can be numerically small by setting a high  $\alpha$  level for the preliminary test. (Denenberg, 1976, p. 192).

Results showed there was no significant difference ( $\chi^2=4.163$ ,  $p=.24$ ). Therefore, the hypothesis was accepted. The results of this test are shown in Table 4.

#### Hypothesis 4

Among fathers who are not present at the cesarean birth of their infants, there will be no significant

difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time and the experienced father.

The Kruskal-Wallis test was used to determine whether there was a significant difference at the .20 level between the scores of the first-time fathers who were not present at delivery and the experienced fathers who were not present at delivery. Results showed there was no significant difference ( $\chi^2=4.163$ ,  $p=.24$ ). Therefore, the hypothesis was accepted. The results of this test are shown in Table 4.

The Mann-Whitney U test was used to test the strength of the relationships which existed between the following: (a) infant gender and attachment score, (b) anticipation of cesarean birth and attachment score, and (c) holding the infant at delivery and attachment score. No significant differences in attachment were found related to infant gender, anticipation of cesarean birth and holding the infant at delivery. The results of these tests are shown in Table 6.

Table 6

Relationships among Attachment Score and Infant Gender,  
 Anticipation of Cesarean Birth, and Holding the Infant  
at Delivery Using Mann-Whitney U Test

Variable	Categories	N	Mean Ranks	U	Significance
Gender of Infant	Male	17	15.59	109.0	0.967
	Female	13	15.38		
Anticipation of Cesarean Birth	Planned	16	13.22	75.5	0.130
	Unplanned	14	18.11		
Holding the Infant at Delivery (father)	Yes	18	16.78	85.0	0.346
	No	12	13.58		

The Kruskal-Wallis test was used to test the relationship which existed between highest grade completed and attachment score. No significant difference was found. For statistical purposes, years of school past the 12th grade are 12+n years. For example, a father who completed one year of a collegiate program had  $12+1=13$  years of school. Those fathers who had postgraduate education were combined into one category. The results of this test is shown in Table 7.

Table 7

Relationship between Attachment Score and  
Highest School Grade Completed

Highest Grade Completed	N	Mean Ranks*
12 to 15 Years	17	15.74
16 Years	6	16.58
Postgraduate	7	14.00

\*Kruskal-Wallis,  $\chi^2=0.306$ ,  $p=0.858$

The Spearman Rank Correlation was used to determine the strength of the relationship between: (a) age of the father and attachment score, and (b) child care experience and attachment score. No significant relationships were found between age and child care experience of the father and attachment score. The results of these tests are shown in Table 8.

Table 8

Spearman Rank Correlations among Attachment Score and Age and Child Care Experience of the Father

	Variable			
	N	Age	N	Child Care Experience
Attachment Score	30	-0.056 p=0.383	29	0.016 p=0.466

## CHAPTER V

Discussion of Findings

This study was concerned with father-infant relationships among fathers present at delivery, experience of the father (first-time father or not first-time father) and attachment behavior. One of the basic assumptions was that a father displays attachment behaviors similar to the attachment behaviors of a mother. Therefore, a tool similar to one which describes observable maternal attachment behaviors was used. All 30 fathers in the study displayed some types of attachment behaviors toward their infants.

The discussion of findings is presented according to the hypotheses.

Hypothesis 1

There will be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present.

Statistical analysis shows that there was no significant difference at the .05 level in the number of attachment behaviors displayed during early father-infant interaction by the first-time father who was present at the cesarean birth of his infant than by the first-time father who was

not present. The sample size of first-time fathers who were not present at delivery was very small and a larger sample size would have provided for more vigorous analysis. When the attachment behaviors of the two groups were compared, some similarities were noted:

1. All the fathers, except one (present at delivery), removed their infants from their bassinets and held them consistently for most of the observation period.
2. All the fathers, except one (present at delivery), vocalized to their infants three or more times.
3. All the fathers smiled at their infants two or more times.
4. All the fathers maintained face-to-face contact for more than 15 seconds and frequently made face-to-face contact during the observation period. The father who did not hold his infant made face-to-face contact with his infant in the bassinet.

Two (66%) of the fathers who were not present at delivery made no identifying remarks about their infants compared with two (15%) of the fathers who were present. Identifying remarks said by the fathers about their infants included: "looks like Mom;" "the hair smells so nice;" "isn't she beautiful;" "look at all the hair;" "looks so big;" and, "looks so tiny." Other remarks were made about the skin, fingernails and eyes. Thirteen

of the infants opened their eyes and the fathers maintained eye contact. If the infants' eyes remained closed, most fathers requested the infants open their eyes.

The first-time fathers displayed attachment behaviors characteristic of the term "attachment behavior" as described by Bowlby, Ainsworth and Klaus and Kennell and investigated by Greenberg and Morris (1974), Parke and O'Leary (1976), Bowen and Miller (1980), Rodholm (1981), and Toney (1982). Greenberg and Morris found that there were no highly significant differences in observations of "engrossment" between first-time fathers who were present at delivery and first-time fathers who were not present.

Bowen and Miller concluded in their research that presence at delivery is an important variable related to observable attachment behaviors of fathers with their newborn infants, significant behaviors being inspection and verbalization. Had a larger population with more equally sized groups been used in this present study, the findings might have indicated presence at delivery as a significant variable. Given that power efficiency of the Kruskal-Wallis test compared to anova is 95%, power to detect medium-sized differences between groups is between .64 and .81 (Cohen, 1977). Increasing sample size would increase power to detect differences.

Toney explored the effects of holding the infant

at delivery on paternal attachment behavior and found no significant differences in behavior between fathers who held their infants at birth and those who did not. This present study also found similar results between first-time fathers who held their infants at birth and those who did not. One reason for this may lie in the fact that the nursery procedures in the institution allow the father to touch his infant during the first six hours after birth, though he usually is not given the opportunity to hold his infant during this newborn observation period.

#### Hypothesis 2

There will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean birth of his infant than by the experienced father who is not present.

Statistical analysis shows that there was no significant difference at the .05 level in the number of attachment behaviors displayed during early father-interaction by the experienced father who was present at the cesarean birth of his infant than by the experienced father who was not present. The responses as measured by individual items on the Father-Infant Attachment Inventory show very little variability; however, some points can be summarized.

1. Only one father (present at delivery) did not reach and remove his infant immediately from the bassinet.
2. Only one father (not present at delivery) did not hold his infant close and pat, stroke or kiss his infant. The infant was held close with no caressing.
3. Only one father (not present at delivery) did not smile three or more times at his infant. The father smiled at his infant one or two times.
4. All the fathers maintained face-to-face contact for more than 15 seconds and frequently made face-to-face contact during the observation period.
5. All the fathers vocalized to their infants three or more times.

One explanation why there was very little variability in the attachment behaviors of the experienced fathers may lie in social learning theory. Based on the social learning theory as described by Bandura (1977) and others, one could assume parenting can be learned through modeling, experiences which are available to the father, and previous experience with children. All the experienced fathers in the study were married and indicated child care experience. The present study results may also be explained by Jones (1980) who reports that "attitudes formed earlier in the father's experience may be stronger determinants of his perceptions and behaviors toward his infant than the

experience of early contact" (p. 198).

### Hypothesis 3

Among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

Among fathers who were present at the cesarean birth of their infants, there was no significant difference at the .20 level in the number of attachment behaviors displayed during early father-infant interaction by the first-time and experienced fathers. It is possible that this result is related to the sample of experienced fathers in that five fathers (55%) were not present at the birth of previous children. There were two noted differences in the groups of fathers:

1. Four of the first-time fathers (30%) did not reach for their infants immediately and one father did not remove his infant from the bassinet. Only one experienced father (11%) did not reach for his infant immediately.

2. Nine of the first-time fathers (69%) were able to stimulate their infants to open their eyes and, therefore, receive a score on the eye contact item. Only one of the experienced fathers (11%) was able to receive a score on

eye contact.

The fact that fathers present at cesarean births display attachment behaviors, regardless of whether they are first-time or experienced fathers, is similar to the hypothesis generated from a study by Banks (1978). She believes that the trend toward paternal inclusion in cesarean births is resulting in a higher incidence of paternal engrossment among fathers.

Hypothesis 4

Among fathers who are not present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time father and the experienced father.

Among fathers who were not present at the cesarean birth of their infants, there was no significant difference at the .20 level in the number of attachment behaviors displayed during early father-infant interaction by the first-time and experienced fathers. The sample size of both groups of fathers was small. Among the fathers who were not present at delivery, the following points were noted:

1. All the fathers held their infants for most of the observation period, vocalized three or more times to their infants, and maintained face-to-face contact for

more than 15 seconds.

2. All the experienced fathers immediately removed their infants from their bassinets. Two of the first-time fathers (66%) did not reach for their infants immediately.

3. Two of the experienced fathers (40%) and two of the first-time fathers (66%) made no identifying remarks about their infants.

A study by Pedersen et al (1981) suggested that fathers of cesarean born infants show greater concern for their infants' care, but smiled less at their infants than fathers whose infants deliver vaginally. Pedersen et al also found no indication that fathers of cesarean born infants engage in higher rates of purely social interaction. All of the fathers in this present study demonstrated attachment behaviors toward their infants and vocalized and smiled at their infants. These attachment behaviors were similar to the stable and uniform paternal behaviors observed by McDonald (1978).

Analysis of demographic data related to total interaction scores showed that infant gender and the age, child care experience and highest school grade completed by the father were not significantly related to attachment behavior. The results of this study were not consistent with those of Toney (1982) who concluded

that there were more attachment behaviors noted with male infants than with female infants and with increased levels of education. Edwards (1976) also concluded that fathers verbalize more freely to male infants than to female infants. Rodholm (1981) showed a statistically significant difference in touching behavior observed between fathers who were allowed infant contact immediately after cesarean birth and those who were not allowed contact, but no differences were found in the way fathers treated male and female infants.

One explanation for the findings of this study lies within the instrument. Infant-directed behaviors were organized into 11 nonexclusive categories. No theoretical justification exists for considering any one behavior more important than another. The use of larger sample size and a more discriminating paternal behavior scale, one including frequency of behaviors displayed, may have yielded significant data.

Infant state has been demonstrated to have a significant inverse relationship to paternal attachment behavior (Bowen & Miller, 1980). In this present study, the infant state effected the father's score on item 8, eye contact. If the infant's eyes remained closed for the entire observation period, the father did not receive any points (however, data analysis on total attachment

interaction score eliminating item 8 was not significant). Item 8 did not allow points for fathers who spent a considerable amount of time asking their infants to open their eyes. It was not difficult to ascertain if the fathers were looking into the infants' eyes. When the eyes were open, the fathers remarked about eye color, what the infant could see, or stated the eyes were open.

The one father who did not remove his infant from the bassinet was automatically prevented from scoring on items 3, 4 and 5. This is a limitation of the tool. This father scored the lowest on total attachment score.

The investigator attempted to coordinate first contact opportunity for father-infant interaction, without restrictions, with the observation period. The amount and type of contact opportunity in the nursery, with restrictions, were not controlled. Father-infant contact during this time may have influenced the study results.

Another explanation for the findings may be within the duration of the observation period and that there was only one time period for postpartum observation. Attachment is an emotional relationship which endures over time and which only can be indirectly observed through behaviors. A ten minute period for observing paternal attachment behaviors may not be adequate time

to measure the relationship.

Limitations of the Study

1. The study was limited to one population of fathers who volunteered to be in the study. This may bias the findings since these fathers might be expected to relate more actively to their infants than would fathers who declined to participate in the study.

2. It is recognized that the sample size is small and it was not possible to randomly assign fathers to groups.

3. No effort was made to assess paternal anxiety and its effects on the father-infant relationship.

4. The presence of an observer was a limitation in that the father may perform differently (father-infant interaction) than if an observer was not present.

5. Finally, as previously mentioned, the study used a tool which contained items that could not be scored for some fathers.

## CHAPTER VI

Summary, Conclusions, Implications, and RecommendationsSummary

The purpose of this study was to investigate the attachment behaviors of fathers whose infants were born by cesarean delivery. The study was designed to describe and compare the attachment behaviors of first-time and experienced fathers and the attachment behaviors of fathers who were present at delivery and the fathers who were not present at delivery. Attachment behaviors were assessed by use of the Father-Infant Attachment Inventory.

The study sample consisted of 30 fathers and their infants born by cesarean delivery. The infants were born in an armed forces medical center located in a metropolitan community. All the infants were healthy, full-term infants delivered under regional anesthesia. They were single births and there was no maternal or fetal distress. The entire data collection period was from September 27, 1983, through January 31, 1984.

Four hypotheses were tested. Hypothesis 1 stated that there would be a greater number of attachment behaviors displayed during early father-infant interaction by the first-time father who is present at the cesarean birth of his infant than by the first-time father who is not present. Data were analyzed utilizing the Kruskal-Wallis

test. No significant difference was found between the first-time fathers who were present at delivery and the first-time fathers who were not present at delivery. Therefore, this hypothesis was rejected.

Hypothesis 2 stated that there will be a greater number of attachment behaviors displayed during early father-infant interaction by the experienced father who is present at the cesarean birth of his infant than by the experienced father who is not present. Data were analyzed utilizing the Kruskal-Wallis test. No significant difference was found between the experienced fathers who were present at delivery and the experienced fathers who were not present at delivery and this hypothesis was rejected.

Hypothesis 3 stated that, among fathers who are present at the cesarean birth of their infants, there will be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time and the experienced father. Data were analyzed utilizing the Kruskal-Wallis test. No significant difference was found between first-time and experienced fathers who were present at delivery and the hypothesis was accepted.

Hypothesis 4 stated that, among fathers who are not present at the cesarean birth of their infants, there will

be no significant difference in the number of attachment behaviors displayed during early father-infant interaction by the first-time and the experienced father. Data were analyzed utilizing the Kruskal-Wallis test. No significant difference was found between the first-time and experienced fathers who were not present at delivery. Therefore, the hypothesis was accepted.

Using the Mann-Whitney U test, analysis of the total interaction score showed that infant gender, father anticipation of cesarean birth and holding the infant at delivery were not significantly related to attachment behavior. Using the Kruskal-Wallis test, analysis of the total interaction score showed that highest school grade completed by the father was not significantly related to attachment behavior. Using the Spearman Rank Correlation test, analysis of the total interaction score showed that age and child care experience of the father were not significantly related to attachment behavior.

#### Conclusions

On the basis of these findings, the following conclusions can be made:

1. Regardless of presence or not being present at the cesarean birth of their infants, fathers do not differ significantly in their demonstrations of early attachment behavior toward their infants.

2. Regardless of being a first-time or an experienced father, fathers do not differ significantly in their demonstration of early attachment behavior toward their infants.

3. Regardless of the infant's gender, holding the infant at delivery, and the father's age, child care experience and anticipation of cesarean birth, fathers do not differ significantly in their demonstration of early attachment behavior toward their infants.

#### Implications

This study has several implications for health care professionals who work with parents experiencing a birth.

1. Since many fathers seemed highly interested in their infants, nurses need to consider the father's desire to be actively involved in his infant's birth regardless of the delivery method.

2. Nurses must be aware of a father's readiness to participate in the birth experience. If a father chooses not to attend delivery, nurses must be non-judgmental and provide opportunity for infant contact as soon as possible after birth.

3. Nurses who conduct childbirth classes need to make expectant parents aware that the mother may have a cesarean birth and that the mother can request her partner's presence at delivery. Study results reveal

that there was a tendency toward positive responses of fathers toward their infants and toward the cesarean birth experience.

4. Nurses need to offer cesarean childbirth classes which include preparation of the father as an active caretaker of his infant. Nurses must be aware that the mother needs physical and emotional recovery from surgery in the first postpartum weeks. During this time, the father can share the infant caretaking responsibilities and the mother should not feel guilty when he does so.

5. Since it is often difficult to completely facilitate a father's participation at a cesarean birth, nurses need to be adept in providing opportunities for father-infant interaction.

6. Nurses must be willing to develop, use and improve upon tools which assess paternal attachment behavior.

#### Recommendations

Based on the findings of this study, the investigator makes the following recommendations for further study:

1. Replication of the study with a larger sample from different populations in order to widen the scope of the generalizability.

2. Replication of the study using a tool which includes

a frequency scale for each attachment behavior.

3. A study to include measuring the father's stress associated with a cesarean birth and its effect on the parent-infant relationship.

4. Finally, a study to identify those factors that can enable parents to share more fully and more positively in the cesarean birth experience.

## APPENDIX A

## Fathers' Qualitative Variables

Father	Race	Occupation	Experience with Children	Present at Previous Birth	Attend Present Infant's Birth
1	Caucasian	Personnel	Very Often	No	No
2	Black	-	Never	First Child	No
3	Caucasian	Neuropsychologist	Very Often	No	No
4	Caucasian	Military Intelligence	Very Often	Yes	Yes
5	Caucasian	Army Officer	Very Often	No	Yes
6	Caucasian	Airlines Station Agent/Waiter	Seldom	First Child	Yes
7	Caucasian	Administration	Seldom	First Child	Yes
8	Black	Physician	Very Often	Yes	No
9	Black	Engineer	Very Often	No	No
10	Caucasian	Air Force	Seldom	No	Yes
11	Caucasian	Army	Very Often	No	No
12	Caucasian	Electronics Technician	Very Often	Yes	Yes
13	Caucasian	Linguist	Sometimes	First Child	Yes
14	Hispanic	Operating Room Technician	Very Often	First Child	Yes
15	Caucasian	Systems Programmer	Sometimes	First Child	Yes

**Fathers' Qualitative Variables**

Father	Race	Occupation	Experience with Children	Present at Previous Birth	Attend Infant's Birth
16	Caucasian	Anesthesiologist	Very Often	Yes	Yes
17	Caucasian	Army Signal Corps	Sometimes	First Child	Yes
18	Caucasian	Lawyer	-	No	Yes
19	Caucasian	Air Force	Very Often	No	Yes
20	Caucasian	Navy	Very Often	First Child	Yes
21	Black	Quartermaster	Sometimes	First Child	No
22	Caucasian	Heating/Airconditioning	Never	First Child	Yes
23	Caucasian	Air Force	Never	First Child	Yes
24	Caucasian	Physician	Very Often	No	Yes
25	Caucasian	Medical Supply	Seldom	First Child	Yes
26	Caucasian	Physician	Sometimes	Yes	Yes
27	Caucasian	Radio Communications Analyst	Never	First Child	Yes
28	Caucasian	Veterinarian	Very Often	No	Yes
29	Caucasian	Cryptography	Never	First Child	Yes
30	Black	Army	Very Often	First Child	No

Fathers' Qualitative Variables

Father	Held Infant at Delivery	Delivery by Cesarean Birth	Infant's Gender	Reason for Attending or Not Attending Birth
1	No	Planned	Female	Absolutely no desire to watch
2	No	Planned	Male	I was not home when she came to the hospital
3	Yes	Planned	Female	-
4	No	Planned	Female	To experience the birth with my wife
5	Yes	Planned	Male	I wanted to support my wife as much as possible
6	Yes	Unplanned	Female	To just be there in case of trouble
7	Yes	Unplanned	Female	To be supportive and participate
8	No	Planned	Female	They threw me out because complications led to general anesthesia
9	No	Planned	Male	I have a fear of hospitals
10	Yes	Planned	Male	To experience birth of a child
11	Yes	Planned	Male	Paternal obligation to one's children
12	No	Planned	Male	Wife's choice
13	No	Unplanned	Male	Wanted the birth to be a joint experience, husband and wife
14	Yes	Unplanned	Female	It's my baby, it's important to us, It's a joint experience
				To be with my wife and baby

Fathers' Qualitative Variables

Father	Held Infant at Delivery	Delivery by Cesarean Birth	Infant's Gender	Reason for Attending or Not Attending Birth
15	Yes	Unplanned	Female	I felt my wife and I should be together for the birth
16	Yes	Planned	Female	Wouldn't miss it for the world
17	Yes	Unplanned	Male	To be with my wife
18	No	Planned	Male	To provide emotional support for my wife
19	Yes	Planned	Male	See my son arrive into this world, comfort and be strong for my wife
20	Yes	Planned	Male	To support my wife, so someone could hold the baby as soon as it was born
21	Yes	Unplanned	Male	My wife did not want me in the delivery because I had no had sleep for 18 hours and we had worked hard for 10½ hours before then
22	Yes	Unplanned	Female	I went thru all the labor pains with my wife, as her coach, by not being there would have meant missing the most important event of my life
23	No	Unplanned	Female	To offer support for my wife, to see (experience) my daughter's first minutes of life
24	Yes	Planned	Male	Wanted to
25	No	Unplanned	Male	To be with wife, to see my baby

## Fathers' Qualitative Variables

Father	Held Infant at Delivery	Delivery by Cesarean Birth	Infant's Gender	Reason for Attending or Not Attending Birth
26	No	Unplanned	Male	Comfort wife, see baby
27	Yes	Unplanned	Male	To give support to my wife
28	Yes	Planned	Female	I wanted to see my daughter born, I wanted to be with my wife when she needed me most and share this experience with her
29	Yes	Unplanned	Male	Wanted to be there at delivery, Calm wife during surgery
30	No	Unplanned	Female	I was in the field (at work)

## APPENDIX B

## Fathers' Quantitative Variables

Father	Age	Highest Grade Completed	Age of Wife	Years Married	Attachment Score	Hours Past Delivery of Father-Infant Interaction
1	25	13	24	4	25	25
2	24	12	25	3	21	27 $\frac{1}{4}$
3	34	Postgraduate	34	10	26	6 $\frac{1}{2}$
4	24	12	22	2	24	6 $\frac{1}{2}$
5	26	16	27	4	26	10 $\frac{1}{2}$
6	22	13	19	Single	29	22
7	22	12	20	2	17	21 $\frac{1}{2}$
8	32	Postgraduate	30	7	26	8 $\frac{1}{2}$
9	39	16	39	1	23	7 $\frac{1}{4}$
10	27	12	24	3	27	6 $\frac{1}{2}$
11	34	16	31	9	26	9
12	30	16	28	8	27	7 $\frac{1}{2}$
13	24	12	24	5	25	18 $\frac{1}{2}$
14	26	12	23	1	29	30
15	27	12	28	5	29	18

Fathers' Quantitative Variables

Father	Age	Highest Grade Completed	Age of Wife	Years Married	Attachment Score	Hours Past Delivery of Father-Infant Interaction
16	39	Postgraduate	36	14	27	7 $\frac{1}{4}$
17	22	16	23	1	29	34 $\frac{1}{4}$
18	31	Postgraduate	35	3	27	6 $\frac{1}{2}$
19	21	12	21	3	27	7
20	20	12	22	1	29	22
21	26	12	24	1	28	31 $\frac{1}{2}$
22	26	12	26	3	26	27
23	27	16	26	2	29	13
24	36	Postgraduate	32	8	27	25 $\frac{1}{4}$
25	27	12	26	7	30	11 $\frac{1}{2}$
26	28	Postgraduate	28	2	26	23 $\frac{1}{2}$
27	22	12	23	2	25	32
28	37	Postgraduate	34	5	23	16 $\frac{1}{2}$
29	23	12	23	3	25	21 $\frac{1}{2}$
30	23	13	23	1	27	20 $\frac{1}{2}$

Date of Observation \_\_\_\_\_ Father's Code No. \_\_\_\_\_

Infant's Age \_\_\_\_\_

## FATHER-INFANT ATTACHMENT INVENTORY

## 1. Receiving infant

- 1 - Father does not remove infant from bassinet
- 2 - Father seems hesitant to remove infant from bassinet
- 3 - Father reaches for infant immediately (appears relaxed)

## 2. Stroking or patting while infant is in bassinet

- 1 - Father does not stroke or pat infant
- 2 - Father strokes or pats infant for less than 2 minutes
- 3 - Father strokes or pats infant for more than 2 minutes

## 3. Handling of infant

- 1 - Father holds infant at arms length
- 2 - Father holds infant close to body (arms enfolding)
- 3 - Father holds infant close to body (arms enfolding, pats, strokes or kisses infant)

## 4. Duration of holding

- 1 - Father holds infant for less than 1 minute
- 2 - Father holds infant from 1 to  $2\frac{1}{2}$  minutes
- 3 - Father holds infant for more than  $2\frac{1}{2}$  minutes

## 5. Movement while holding infant

- 1 - Father displays no rocking efforts
- 2 - Father displays occasional rocking efforts
- 3 - Father displays rhythmic rocking efforts

## 6. Vocalizations to infant

- 1 - Father does not vocalize to infant
- 2 - Father coos or talks to infant 1 or 2 times
- 3 - Father coos or talks to infant 3 or more times

7. Smiling behaviors

- 1 - Father does not smile at infant
- 2 - Father smiles at infant 1 or 2 times
- 3 - Father smiles at infant more than 2 times

8. Eye contact

- 1 - Father does not look directly into infant's eyes
- 2 - Father maintains eye contact for less than 15 seconds
- 3 - Father maintains eye contact for more than 15 seconds

9. Face-to-face contact

- 1 - Father does not look at infant's face
- 2 - Father maintains face contact for less than 15 seconds
- 3 - Father maintains face contact for more than 15 seconds

10. Examining body parts

- 1 - Father does not examine body parts
- 2 - Father examines 1 or 2 body parts
- 3 - Father examines more than 2 parts or removes blanket to examine infant

11. Identification

- 1 - Father makes no identifying remarks
- 2 - Father states that infant resembles a certain person
- 3 - Father states that infant resembles a certain person or persons and makes identifying remarks about specific features and/or body parts

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CESAREAN BIRTHS AND ATTACHMENT BEHAVIORS OF FATHERS(U)

2/2

AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH

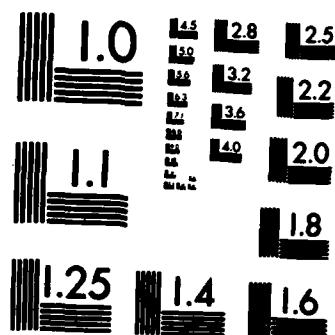
M J WILLIAMS 1984 AFTI/CI/NR-84-25T

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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

Father's Code No. \_\_\_\_\_

## FATHER'S DATA SHEET

1. Age \_\_\_\_\_
2. Race: 1. Caucasian (other than Hispanic) 2. Black  
3. Asian American 4. Hispanic  
5. Other \_\_\_\_\_
3. Present Occupation \_\_\_\_\_
4. Education: Last grade completed:  
  
9 10 11 12  
High School  
  
1 2 3 4  
College  
  
Postgraduate
5. Age of wife \_\_\_\_\_
6. How long have you been married? \_\_\_\_\_
7. Newborn infant's sex \_\_\_\_\_
8. Did you ever have experience caring for a child under one year of age?
  1. Never
  2. Seldom (less than 5 times)
  3. Sometimes (6-15 times)
  4. Often (16-25 times)
  5. Very often (more than 26 times)
9. If this is not your first child, were you present at the birth of any previous children? \_\_\_\_\_
10. Did you attend the cesarean birth of your present infant? \_\_\_\_\_
11. Did you hold your infant at delivery? \_\_\_\_\_
12. Was the present cesarean delivery:
  1. Planned
  2. Unplanned
13. Why did you attend, or not attend, the cesarean birth of your infant? \_\_\_\_\_

## APPENDIX E

## INTRODUCTION OF INVESTIGATOR TO FATHER

Hello, rank or Mr. \_\_\_\_\_. I am Captain Margaret Williams, a nurse in the Air Force and a graduate nursing student at the University of Maryland. Nurses need to know more about fathers whose infants are born by cesarean delivery so we can address the father's interests as well as the mother and baby's interest. Therefore, I am doing a small study on fathers and their babies born by cesarean delivery. If you are interested in taking part in the study, you will be asked to answer a short questionnaire. Also, I will be present for no longer than 10 minutes when you visit with your infant. This visit will be your first visit with your infant without any restrictions on your part after your infant is 6 hours old. We can arrange the time of the visit to be convenient. Your agreement is entirely voluntary.

## APPENDIX F

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MAVING FULL CAPACITY TO CONSENT, DO HEREBY CONSENT FOR MY CUR

## הנפקה והבאתם של ממצאים

## Cesarean Births and Attachment Behaviors of Fathers

UNDER THE DIRECTION OF LTC James Haddock OF THE DEPARTMENT/SERVICE/INSTITUTE OF Obstetrics and Gynecology WALTER REED ARMY MEDICAL CENTER, WASHINGTON, D.C. and Maj Linda Dempster, Department of Nursing, WRAMC, and Capt Margaret Williams, University of Maryland  
IN THE ABSENCE OF HIGHER PARTICIPATION, THE NATURE, DURATION, AND PURPOSE OF THE INVESTIGATIONAL STUDY; THE METHODS AND MEANS BY WHICH IT IS TO BE CONDUCTED; AND THE INCONVENIENCES AND HAZARDS WHICH MAY REASONABLY BE EXPECTED HAVE BEEN EXPLAINED TO ME/US BY \_\_\_\_\_,  
AND ARE SET FORTH ON THE ATTACHED PAGE(S) OF THE AGREEMENT WHICH I/WE HAVE INITIALED OR SIGNED.  
I/WE HAVE BEEN GIVEN AN OPPORTUNITY TO ASK QUESTIONS CONCERNING THIS INVESTIGATIONAL STUDY, AND SUCH QUESTIONS HAVE BEEN ANSWERED TO MY/OUR FULL AND COMPLETE SATISFACTION.

I/WE CERTIFY THAT MY/OUR CHILD HAS RECEIVED AN EXPLANATION OF THIS INVESTIGATIONAL STUDY IN TERMS THAT HE/SHE CAN UNDERSTAND, THAT HE/SHE HAS HAD AN OPPORTUNITY TO ASK AND HAS HAD ANSWERED ANY QUESTIONS CONCERNING THIS STUDY, AND THAT HE/SHE ASSENTS TO PARTICIPATING IN THIS STUDY.

I/WE HAVE BEEN PROVIDED WITH A COPY OF THE PRIVACY ACT STATEMENT (DD FORM 2005) WHICH HAS MADE ME/US AWARE OF THE SAFEGUARDS AVAILABLE TO ME/US AS A RESULT OF THE PRIVACY ACT OF 1974. I/WE HAVE BEEN GIVEN A CHANCE TO REVIEW THE DD FORM 2005, TO ASK QUESTIONS, AND TO RETAIN A PERSONAL COPY. I/WE HAVE BEEN MADE AWARE THAT THE INFORMATION GAINED ABOUT MY/OUR CHILD, BECAUSE OF HIS/HER PARTICIPATION IN THIS INVESTIGATIONAL STUDY, MAY BE PUBLISHED IN MEDICAL LITERATURE, DISCUSSED AS AN EDUCATIONAL MODEL, AND USED GENERALLY IN THE FURTHERANCE OF MEDICAL SCIENCE. MY/OUR CHILD ALONG WITH MYSELF/OURSELVES CONSENT TO PROVIDE SUCH PERSONAL INFORMATION AS IS REQUESTED OF US FOR THIS INVESTIGATIONAL STUDY AND FREELY CONSENT TO THE DISCLOSURE OF PERSONAL INFORMATION DERIVED FROM HIS/HER PARTICIPATION IN THIS STUDY FOR REASONS OF PUBLICATION IN MEDICAL LITERATURE, DISCUSSION AS AN EDUCATIONAL MODEL, AND FOR THOSE ADDITIONAL REASONS WHICH SPECIFICALLY RELATE TO THE FURTHERANCE OF MEDICAL SCIENCE.

I/WE UNDERSTAND THAT I/WE MAY AT ANY TIME DURING THE COURSE OF THE INVESTIGATIONAL STUDY REVOKE MY/OUR CONSENT AND WITHDRAW MY/OUR CHILD FROM THIS STUDY WITHOUT PREJUDICE; HOWEVER, HE/SHE MAY BE REQUESTED TO UNDERGO FURTHER EXAMINATION, IF, IN THE OPINION OF THE ATTENDING PHYSICIAN, SUCH EXAMINATIONS ARE NECESSARY FOR HIS/HER WELL BEING.

I/WE UNDERSTAND THAT IN THE EVENT OF PHYSICAL INJURY RESULTING FROM THE RESEARCH PROCEDURES, MEDICAL TREATMENT FOR THE INJURIES OR ILLNESS IS AVAILABLE AND THAT COMPENSATION MAY BE AVAILABLE THROUGH JUDICIAL AVENUES.

DATE

**SIGNATURE  
RELATIONSHIP:**

**SIGNATURE  
RELATIONSHIP:** \_\_\_\_\_

I WAS PRESENT DURING THE EXPLANATION REFERRED TO ABOVE, AS WELL AS DURING THE PARENTS'/GUARDIANS' AND THE CHILD'S OPPORTUNITY FOR QUESTIONS AND HEREBY WITNESS THEIR SIGNATURES.

**WITNESS SIGNATURE**

**PHYSICIAN'S SIGNATURE**

**DATE**

ASSENT STATEMENT (CHILDREN UNDER LEGAL AGE OF CONSENT)

I CERTIFY THAT I HAVE RECEIVED AN EXPLANATION OF THIS INVESTIGATIONAL STUDY IN TERMS THAT I CAN UNDERSTAND, THAT I HAVE HAD AN OPPORTUNITY TO ASK AND HAVE RECEIVED ANSWERS TO ANY QUESTIONS I HAD CONCERNING THIS STUDY, AND THAT I AGREE TO PARTICIPATE IN THIS STUDY.

**PATIENT'S SIGNATURE**

247

## **VOLUNTEER AGREEMENT**

WCRX 1981 T 87

I, \_\_\_\_\_, HAVING ATTAINED MY EIGHTEENTH (18th) BIRTHDAY, AND OTHERWISE HAVING FULL CAPACITY TO CONSENT, DO HEREBY VOLUNTEER TO PARTICIPATE IN AN INVESTIGATIONAL STUDY ENTITLED:

## Cesarean Births and Attachment Behaviors of Fathers

UNDER THE DIRECTION OF ITC James Haddock OF THE DEPARTMENT/SERVICE/INSTITUTE  
OF Obstetrics and Gynecology, WALTER REED ARMY MEDICAL CENTER, WASHINGTON,  
D.C. and Maj Linda Dempster, Department of Nursing, WRAMC  
and Capt Margaret Williams, University of Maryland  
THE IMPLICATIONS OF MY VOLUNTARY PARTICIPATION, THE NATURE, DURATION AND PURPOSE OF THE  
STUDY; THE METHODS BY WHICH THE STUDY IS TO BE CONDUCTED; AND THE KNOWN INCONVENIENCES AND  
HAZARDS HAVE BEEN THOROUGHLY EXPLAINED TO ME BY THE PRINCIPAL INVESTIGATOR OR BY ONE OF  
THE COINVESTIGATORS AND SUCH INCONVENIENCES AND HAZARDS ARE SET FORTH IN DETAIL ON THE  
ATTACHED PAGE OF THIS AGREEMENT, ALONG WITH MY INITIALS OR SIGNATURE. I HAVE BEEN GIVEN  
AN OPPORTUNITY TO ASK QUESTIONS CONCERNING THIS INVESTIGATIONAL STUDY AND MY PARTICIPATION  
IN THE STUDY, AND ANY SUCH QUESTIONS HAVE BEEN ANSWERED TO MY FULL AND COMPLETE SATISFACTION.

DURING THE COURSE OF MY TREATMENT AS A PATIENT AT WALTER REED ARMY MEDICAL CENTER, I HAVE BEEN PROVIDED WITH A COPY OF A PRIVACY ACT STATEMENT (DD FORM 2005) WHICH HAS MADE ME AWARE OF THE SAFEGUARDS AVAILABLE TO ME BECAUSE OF THE PRIVACY ACT OF 1974. I HAVE BEEN GIVEN THE OPPORTUNITY TO REVIEW THE DD FORM 2005, ASK QUESTIONS AND RETAIN A PERSONAL COPY. I HAVE BEEN MADE AWARE THAT THE INFORMATION GAINED ABOUT ME, BECAUSE OF MY PARTICIPATION IN THIS INVESTIGATIONAL STUDY, MAY BE PUBLICIZED IN MEDICAL LITERATURE, DISCUSSED AS AN EDUCATIONAL MODEL, AND USED GENERALLY IN THE FURTHERANCE OF MEDICAL SCIENCE. I FREELY CONSENT TO PROVIDE SUCH PERSONAL INFORMATION AS IS REQUESTED OF ME FOR THIS INVESTIGATIONAL STUDY AND FREELY CONSENT TO THE DISCLOSURE OF PERTINENT PERSONAL INFORMATION DERIVED FROM MY PARTICIPATION IN THIS INVESTIGATIONAL STUDY FOR REASONS OF PUBLICATION IN MEDICAL LITERATURE, DISCUSSION AS AN EDUCATIONAL MODEL AND FOR THOSE ADDITIONAL REASONS WHICH SPECIFICALLY RELATE TO THE FURTHERANCE OF MEDICAL SCIENCE.

I UNDERSTAND THAT IN THE EVENT OF PHYSICAL INJURY RESULTING FROM THE RESEARCH PROCEDURES, MEDICAL TREATMENT FOR INJURIES OR ILLNESS IS AVAILABLE AND THAT COMPENSATION MAY BE AVAILABLE THROUGH JUDICIAL AVENUES. INFORMATION REGARDING JUDICIAL AVENUES OF COMPENSATION IS AVAILABLE FROM THE CENTER JUDGE ADVOCATE.

I AM AWARE THAT AT ANY TIME DURING THE COURSE OF THIS INVESTIGATIONAL STUDY I MAY REVOKE MY CONSENT AND WITHDRAW FROM THIS STUDY, WITHOUT PREJUDICE; HOWEVER, I MAY BE REQUESTED FOR MEDICAL REASONS TO UNDERGO FURTHER EXAMINATIONS IF IN THE OPINION OF MY ATTENDING PHYSICIAN SUCH EXAMINATIONS ARE NECESSARY FOR MY HEALTH OR WELL BEING.

IF THERE IS ANY PORTION OF THIS EXPLANATION THAT YOU DON'T UNDERSTAND, ASK YOUR DOCTOR BEFORE SIGNING.

**SIGNATURE**

**DATE**

**PRINTED NAME**

DATE

**• ADDRESS (PERMANENT)**

I WAS PRESENT DURING THE EXPLANATION REFERRED TO ABOVE, AS WELL AS DURING THE VOLUNTEER'S OPPORTUNITY TO ASK QUESTIONS. I HEREBY WITNESS THE VOLUNTEER'S SIGNATURE.

**WITNESS SIGNATURE**

**PRINCIPAL INVESTIGATOR'S SIGNATURE**

## APPENDIX G

## VOLUNTEER EXPLANATION CONSENT SHEET

INSTITUTE: Walter Reed Army Medical Center  
Washington, D. C. 20307

TITLE OF PROTOCOL: Cesarean Births and Attachment  
Behaviors of Fathers

PRINCIPAL INVESTIGATOR: Margaret Jean Williams,  
Captain, United States Air Force, Nurse Corps,  
University of Maryland, Telephone number (301) 544-3053

PARTICIPATION INFORMATION: You have been asked to participate in a research study conducted at Walter Reed Army Medical Center. It is very important that you read and understand the following general principles which apply to all participants in our studies, whether normal or patient volunteers: (a) your participation is entirely voluntary; (b) you may withdraw from participation in this study or any part of the study at any time. Refusal to participate will involve no penalty or loss of medical benefits to which you are entitled; (c) after you read the explanation, please feel free to ask any questions that will allow you to clearly understand the nature of the study.

NATURE OF STUDY: The purpose of the study is to learn more about the behaviors of fathers and their babies who deliver by cesarean section, and to see if there is any relationship of actions between fathers who attended delivery and fathers who did not attend delivery. You will be asked to complete the Father Data Sheet, and you will be asked to visit with your infant when your infant is approximately 6 to 48 hours old. The investigator will be present when you visit with your infant. This study reflects past studies done with fathers whose infants delivered vaginally.

BENEFIT: You will not benefit directly from this study, but the study may contribute information about the benefits for infants of father-attended cesarean sections.

DURATION OF THE STUDY: Participation will last a short time. The Father Data Sheet will take approximately five minutes to complete and you will visit with your infant for ten minutes.

RISKS, INCONVENIENCES AND DISCOMFORTS: There are no risks related to the research. The only discomfort would be the possibility of the remembrances of distressing experiences related to your wife's labor and/or the operating room.

---

Subject Initials

## VOLUNTEER EXPLANATION CONSENT SHEET

**SAFEGUARDS:** There is no hazard to you or your infant. Any information you provide will be treated confidentially. No records will be maintained which identify you or your infant as the research subjects. You and your infant will visit in a room near the Newborn Nursery should your infant require medical or nursing assistance.

**ALTERNATIVES TO PARTICIPATION IN THE STUDY:** Refusal to participate or withdrawal from the study will not in any way effect the care or treatment your infant or your wife receives at Walter Reed Army Medical Center.

**CIRCUMSTANCES UNDER WHICH YOUR PARTICIPATION MAY BE TERMINATED WITHOUT YOUR CONSENT:** (a) Health conditions under which your participation possibly would be dangerous. (b) Other conditions which might occur that make your participation detrimental to you, your own health, or the health of your infant.

**SIGNIFICANT NEW FINDINGS:** Any significant new information regarding new findings that develop during the study will be made available to you.

**NUMBER OF SUBJECTS TO BE STUDIED. TYPE OF SUBJECT POPULATION TO BE STUDIED:** There will be an attempt to include 40 fathers, 20 fathers who were present at the birth of their infants and 20 fathers who were not present at the birth of their infants.

**ADDITIONAL INFORMATION:** During your participation in the research, if you suffer physical injury, the University of Maryland will provide acute medical treatment and provide subsequent referrals to appropriate health care facilities. However, the University of Maryland cannot provide any financial compensation due to any injury suffered during this program. Information regarding research can be obtained from the Human Volunteers Coordinator, HUMAN VOLUNTEERS RESEARCH COMMITTEE, UMAB, Room 14-002, 655 West Baltimore Street, Baltimore, Maryland 21201; (301) 528-5037.

**FOR FURTHER INFORMATION:** Please contact the principal investigator at: Margaret Jean Williams  
Captain, USAF, NC  
(301) 544-3053

For information regarding the rights of research subjects, please contact Center Judge Advocate Office  
576-4096, 4097

**SIGNATURES:****VOLUNTEER SIGNATURE****INVESTIGATOR SIGNATURE**

Margaret J. Williams

Captain, USAF, NC

University of Maryland

**WITNESS SIGNATURE****DATE****TIME**

## APPENDIX H

## EXPLANATION OF FATHER'S VISIT WITH INFANT

Rank or Mr. \_\_\_\_\_. This is your baby. He/she will be in this room with you for ten minutes and I also will be present.

A baby's five senses are working from birth; he/she can see, hear and feel. He/she also has reflex behaviors that are particularly obvious if the baby is suddenly subject to loud noises or movement of his/her body. You can do anything that you want with your baby and in any way you may choose. Chairs are here for your use. If you have any questions, I will be glad to answer them after ten minutes.

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